



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,506	07/25/2003	Hardayal Singh Gill	HIT1P036/HSJ9-2003-0164US	6933

28875 7590 01/10/2007  
Zilka-Kotab, PC  
P.O. BOX 721120  
SAN JOSE, CA 95172-1120

EXAMINER
----------

MILLER, BRIAN E

ART UNIT	PAPER NUMBER
----------	--------------

2627

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/10/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/627,506	GILL, HARDAYAL SINGH	
	<b>Examiner</b>	<b>Art Unit</b>	
	Brian E. Miller	2627	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 October 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 4-6, 8, 19-22 and 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-3, 7, 9-18, 23-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-28 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

Art Unit: 2627

Claims 1-28 are pending with claims 4-6, 8, 19-22, 28 withdrawn from consideration.

### ***Drawings***

1. The replacement drawing sheets were received on 10/18/06. These drawings are acceptable.

### ***Claim Objections***

2. Claims 12-15, 26-27 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. There is no additional structure to distinguish the recited type of head, thus the claim(s) is not considered to further limit the parent claim.
3. Claims 2-3, 7, 9-15, 17-18, 23-27 are objected to because of the following informalities: all the above claims are dependent claims and the preamble should recite "The head" as opposed to "A head" as presently recited. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. Claims 1-3, 7-18, 23-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1 & 16 recite "being adapted for enhancing" which is considered incomplete as there is no recited means or structure to encompass the now claimed "enhancing" and is not readily apparent how such is accomplished.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 7-18, 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinarbasi (US 6,460,243) in view of Gill (US 6,219,208). (As per claims 1 & 16) Pinarbasi discloses a magnetic head, as shown in at least FIG. 11, comprising: a SV sensor 130 and a pair of compression layers 142 positioned towards opposite track edges of the sensor, the compression layers providing compressive stress to the sensor (see col. 2, lines 44-49); (as per claims 2 & 17) wherein the compression layers are constructed of metal, e.g., rhodium (Rh); (as per claims 3 & 18) wherein the compression layers are constructed of rhodium; (as per claim 7) wherein the compression layers are positioned substantially outside the track edges of the sensor; (as per claims 9 & 23) further comprising hard bias layers 140, 144 positioned below the compression layers (as seen in the FIG.); (as per claims 10 & 24) further comprising shield layers S1, S2 positioned above and below the sensor, and at least one electrically insulative layer G1, G2 positioned adjacent each of the compression layers for preventing conduction of electricity through the compression layers from one shield layer to the other shield layer; (as per claims 11 & 25) further comprising shield layers S1, S2 positioned above and below the sensor, and at least one electrically insulative layer G1, G2 positioned adjacent each of the compression layers for preventing conduction of electricity through the compression layers from the sensor to one of the shield layers. Pinarbasi, however, is expressly silent as to the SV sensor employing an

AP pinned layer structure, as commonly known in the art, however, Gill discloses in FIG. 14, film “302” encompass the well known structure, which includes at least two pinned layers 306, 308, having magnetic moments that are self-pinned antiparallel to each other, the pinned layers being separated by an AP coupling layer 304. From this teaching, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the AP pinned structure as described above into the SV sensor of Pinarbasi, as taught by Gill. The motivation would have been: by strong antiparallel coupling between the first and second antiparallel pinned layers 306 and 308 the magnetic moment 312 of the second AP pinned layer is pinned antiparallel to the magnetic moment 310. Accordingly, the magnetic moments 218 and 312 are in phase for enabling spin valve effects that are additive on each side of the free layer structure 202, providing a more responsive MR head. Further, with respect to the newly added language, i.e., the compression layers *being adapted for enhancing* the antiparallel pinning of the pinned layers of the AP pinned layer structure” (emphasis added by the Examiner) is considered to be met by Pinarbasi in so far as any structure has been recited to accomplish the “enhancing”. With respect to claims 12-15 (and similarly for claims 26-27) reference to “wherein the head is...” is considered to not add patentable weight to the claims because no additional structure has been set forth which would distinguish between these different MR head types and thus these claims are rejected as Pinarbasi is considered to encompass these types.

### ***Response to Arguments***

7. Applicant's arguments filed 10/18/06 have been fully considered but they are not persuasive.

Art Unit: 2627

A...Applicant generally asserts (with respect to claims 1 & 16) that there is no suggestion or motivation to combine Pinarbasi in view of Gill.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Examiner has relied upon Gill, the supporting reference, to show a well known AP layer structure, which includes at least two pinned layers 306, 308, having magnetic moments that are self-pinned antiparallel to each other, the pinned layers being separated by an AP coupling layer 304. From this teaching, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the AP pinned structure as described above into the SV sensor of Pinarbasi, as taught by Gill. The motivation would have been: by strong antiparallel coupling between the first and second antiparallel pinned layers 306 and 308 the magnetic moment 312 of the second AP pinned layer is pinned antiparallel to the magnetic moment 310. Accordingly, the magnetic moments 218 and 312 are in phase for enabling spin valve effects that are additive on each side of the free layer structure 202, providing a more responsive MR head. The Examiner maintains that there is sufficient suggestion and motivation found in Gill to properly combine these teachings with Pinarbasi. The Examiner further maintains that since the structure of Pinarbasi in view of Gill is the same as set forth in the claims, the intended use recitations, i.e., "providing compressive stress" and

“being adapted for enhancing” are considered to be encompassed as well by the combination of references, as set forth above.

**B...**As there is just a general allegation of patentability that the dependent claims 2-3, 7, 9-15, 17-18, 23-27, define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references, applicant fails to comply with 37 CFR 1.111(b). It is maintained that the rejections are proper with respect to these claims because there are no arguments.

### *Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian E. Miller whose telephone number is (571) 272-7578. The examiner can normally be reached on M-TH 6:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



**Brian E. Miller**  
**Primary Examiner**  
**Art Unit 2627**

BEM  
January 7, 2007